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Subject Libby RI rationale

Hey folks Attached are a couple documents that go together which describe the thought process for the remedial investigation (RI) sampling approach I've discussed to some degree with all of you. This isn't a stand alone document or meant to be any kind of final product. It's just a summary meant to solicit input and suggestions prior to CDM moving forward with a SAP. I wrote a brief lead in/explanation then laid out specific screening steps then possible scenarios we may encounter & decision points (both written and graphical). Many of the details in this document are glossed over that doesn't mean we haven't considered them it means we are still working on them or they weren't important for this. There is also plenty of judgement that goes into these questions which isn't reflected here but I understand the complexity (I've also made the assumption that we will address ZAI). My intent is for everyone to read this carefully then let me know if the *approach* makes sense any changes you suggest and anything to look for as we get into details (such as sampling and analysis details). I don't need wording or grammatical review unless it's something that affects substance but I do need everyone to think carefully and understand this as it will shape the direction we go on Libby permanently to the tune of over 3000 properties. Tight schedule please get me any comments or call me by **March 19**. Once we move past the conceptual I need everyone to start thinking critically about their particular piece of the pie and how it will need to be modified to fit the approach.

Send this to whom you need to get meaningful input but please don't circulate it too much or let anyone get overly worked up. It is only a conceptual draft. If you can't open something call me and I'll fax it. Call if you need clarification. Contractors if you are going to spend a little time on this check with who you have to consider this a request not a direction. Thanks Jim



LibbyCSSscreeningsteps w CSSScreengraphical PR

WORKING DRAFT 3/7/02, DELIBERATIVE PROCESS

PROPOSED LIBBY RI APPROACH

General Rationale

In general, exposure to asbestos at any specific residential or small commercial property occurs when asbestos containing material is disturbed and the air it contaminates is breathed by a resident or visitor. This can occur outdoors or indoors. For the RI, the challenge is to efficiently find and measure the various “primary” and “secondary” sources of Libby amphibole asbestos which may be disturbed, both indoors and outdoors, at all properties in the Libby study area. “Primary” sources inherently contain high levels of amphibole asbestos and include zonolite attic insulation, vermiculite products and waste, “tremolite” rocks, and highly contaminated soils (e.g. greater than 1% asbestos by weight). The presence of a primary source also indicates that secondary sources, which include contaminated indoor dust and outdoor soil, may also be present.

A sampling program which exhaustively measures all potential primary and secondary sources in one step (e.g. extensive indoor dust sampling, TEM analysis, and risk-based outdoor sampling) is both unnecessary and cost/time prohibitive. An alternative approach, which uses visual and verbal screening to search for obvious primary sources *and* other indicators of potential secondary sources, coupled with low detection limit presence/absence analytical techniques, is a more efficient first step. This approach will build on the experience gained over the past few years and utilize the data constructively. Using such an approach, more acute risks can be identified and dealt with immediately, areas with no contamination can be declared “clean,” and situations in between can be earmarked for additional analysis and possible risk assessment. This approach will provide the most comprehensive “snapshot” of contamination across the Libby Valley presented to date, allowing for sound long-term project planning. Expensive indoor dust sampling, TEM analysis, and other risk based investigation is left until later when the subset of properties potentially needing risk assessment is better defined and likely much smaller than today and risk assessment information has evolved.

To begin designing the RI approach, one must start with one basic assumption. For indoor dust to be contaminated with Libby amphibole asbestos, at least one of the following indicators must be present:

- zonolite attic insulation (ZAI) at the property, past or present
- past tracking in by mining related workers or others who may have been highly exposed
- current or past tracking in from contamination at the property or nearby

If *none* of those indicators is present, it is highly unlikely that indoor dust in the property is contaminated. The RI approach is based on the assumption that it is more efficient to *conservatively* screen for the presence of these sources and indicators than to measure asbestos levels in indoor dust for every property. Therefore, as the first phase of the RI, we will conduct a Contaminant Screening Study (CSS). In general, the CSS will screen *all* properties for ZAI,

outdoor primary source areas, outdoor secondary sources (e.g. concentrations less than 1% but above the detection limit), and other factors which may impact contamination such as a mining-related history. Again, this screen will be conducted through a combination of verbal and visual screening coupled with presence/absence analytical techniques. Properties found to have *any* one such primary source or indicator will either be automatically earmarked for cleanup (e.g. sufficient justification already exists for cleaning up ZAI and outdoor source areas) or earmarked for additional analysis to evaluate risk presented by secondary sources. In some cases, it may be more cost effective and efficient to assume unacceptable secondary source contamination as opposed to performing additional analysis, which may be very costly.

PROPOSED Contaminant Screening Steps For Residential and Small Commercial Properties

Definitions

Primary Source Material = vermiculite products, vermiculite mining waste, “tremolite” rocks

Secondary Source = contaminated indoor dust or outdoor soil (for outdoor soil, generally <1%)

Use Area = defined specific use area such as driveway, flower bed, etc

Zone = general portion of a yard

Screening Questions

Qualitative/Visual Information

- 1 Does the interior have ZAI? Did the interior ever have ZAI?
- 2 Is there any evidence of primary source materials *on* the property?
- 3 Is there any evidence of primary source materials/areas *near* the property? Could this have been tracked in or otherwise spread indoors?
- 4 Is there any reliable knowledge of former miners or close relatives of miners living in the property? Any other knowledge of persons routinely entering the property who may have been highly exposed?
- 5 Is the resident diagnosed with asbestos related disease? Any other reason to believe the property may be impacted either interior or exterior?

Quantitative/Analytical Information

- 6 Is Libby asbestos present at greater than 1% in composite soil samples of zones within yard when analyzed by IR/SEM? (i.e. is there a primary source material or “hot spot”?)
- 7 Is Libby asbestos present at 1% percent in composite soil samples of use areas around property when analyzed by IR/SEM? (i.e. is there a primary source material or “hot spot”?)
- 8 Is Libby asbestos present above detection limit (0.1- 1%) in composite soil samples of zones within yard when analyzed by IR/SEM? (i.e. is outdoor soil a secondary source?)
- 9 Is Libby asbestos present above detection limit (0.1- 1%) in composite soil samples of use areas around property when analyzed by IR/SEM? (i.e. is there a secondary source?)

Possible outcomes of the CSS with likely action steps and issues

a Property with zonolite which has source materials outdoors and other areas of detectable asbestos outdoors

No further indoor sampling Clean up zonolite, interior, and source materials Need to decide whether to clean up other areas of the yard with detectable asbestos away from the source area or to perform additional risk assessment and/or sampling (i.e. is it cheaper/more efficient/more protective of interior cleanup remedy to clean up yard all at once now or to decide later based on sample results and risk assessment?)

b Property with zonolite which has source materials outdoors but no other areas of detectable asbestos outdoors

No further sampling or risk assessment Clean up zonolite, interior, and source materials

c Property with zonolite which has no source materials outdoors but does have other areas of detectable asbestos outdoors

No further indoor sampling Clean up zonolite and interior Need to decide whether to clean up other areas of the yard with detectable asbestos or to perform additional risk assessment and/or sampling (i.e. is it cheaper/more efficient/more protective of interior cleanup remedy to clean up yard now or to decide later based on sample results and risk assessment?)

d Property with zonolite which has no detectable asbestos outdoors

No further sampling or risk assessment Clean up zonolite and interior

e Property without zonolite which has source materials outdoors and other areas of detectable asbestos outdoors

Clean up source materials Need to decide whether to clean up interior now or do additional indoor dust sampling and risk assessment and decide later (i.e. which is more efficient?) Also need to decide whether to clean up other areas of the yard with detectable asbestos or to perform additional risk assessment and/or sampling (i.e. is it cheaper/more efficient/more protective of interior cleanup remedy to clean up yard now or to decide later based on sample results and risk assessment?)

f Property without zonolite which has source materials outdoors but no other areas of detectable asbestos outdoors

Clean up source materials Need to decide whether to clean up interior now or do additional indoor dust sampling and risk assessment and decide later (i.e. which is more efficient?)

g Property without zonolite which has no source materials outdoors but does have other areas of detectable asbestos outdoors

Need to decide whether to clean up interior now or do additional indoor dust sampling and risk assessment and decide later (i.e. which is more efficient?) Perform additional risk assessment and sampling to decide whether to clean up yard

h Property without zonalite, no detectable asbestos outdoors, but does have mining history or other reason to believe indoor dust may be contaminated

Need to decide whether to clean up interior now or do additional indoor dust sampling and risk assessment and decide later (i.e. which is more efficient?)

i Property without zonalite which has no detectable asbestos outdoors and no mining history or other reason to believe indoor dust may be contaminated

No further sampling No action

